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MÜNCHEN

MAX VON PETTENKOFER-INSTITUT  
LEHRSTUHL MEDIZINISCHE MIKROBIOLOGIE UND  
KRANKENHAUSHYGIENE



*The Max von Pettenkofer Institute*  
*Microbiology Seminar Series*

Joint Seminar of LMU, Chair of Microbiology (Fac. of Biology, Prof. K. Jung)  
and LMU, Chair of Medical Microbiology and Hygiene, Max von Pettenkofer  
Institute (Fac. of Medicine, Prof. S. Suerbaum)

Date: **Wednesday, May 28, 2025**

Time: **5.00 pm sharp**

Location: **Lecture Hall MvPI (3<sup>rd</sup> floor)**

**Speaker: Prof. Dr. Lisa Maier**

Excellence Cluster 'Controlling Microbes to Fight Infections' (CMFI)  
Interfaculty Institute of Microbiology & Infection Medicine Tübingen  
M3 Research Center  
Eberhard Karls University & University Hospital Tübingen



**Title: Drug-Microbiome-Interactions and their Consequences on the Host**

The functionality of the gut microbiome is closely linked to a number of environmental factors that influence the microbiome composition. Among these factors, drugs are the most important contributors to inter-individual differences in gut microbiome signatures. Importantly, not only antibiotics, but also non-antibiotic drugs affect the gut microbiome composition. However, it is still unclear whether these drug-microbiome interactions influence the therapeutic efficacy of the drug or lead to individual side effects. Based on our finding that enteropathogens are more resistant to non-antibiotic drugs than commensal gut microbes, we hypothesized that non-antibiotics alter the microbiome in ways that create opportunities for enteropathogens to thrive. Consequently, the consumption of non-antibiotic drugs could support the colonization of bacterial pathogens. By combining advanced high-throughput cultivation methods for anaerobic gut bacteria with gnotobiotic and conventional mouse models, we have identified drugs from different therapeutic classes that effectively promote colonization with pathogenic Gammaproteobacteria. Particularly in immunocompromised hosts, such a drug-induced increase in pathogen load implies an increased risk of infection. In the long term, a comprehensive understanding of the interactions between drugs and the gut microbiome promises to improve the efficacy of current therapies and guide the development of new drugs with reduced side effects.

Host: Prof. Dr. Carolin Wendling and Doc@MvPI graduate program

**This Seminar is registered by BLAEK (Bayerische Landesärztekammer) and authorized with 1 Training Point (Fortbildungspunkt).**

Medical course leader: Prof. Dr. med. Sebastian Suerbaum  
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